(No Model.)

A. T. SNODGRASS

ENGINE CROSS HEAD.

No. 524,074. Patented Aug. 7, 1894.

Fig. 1.

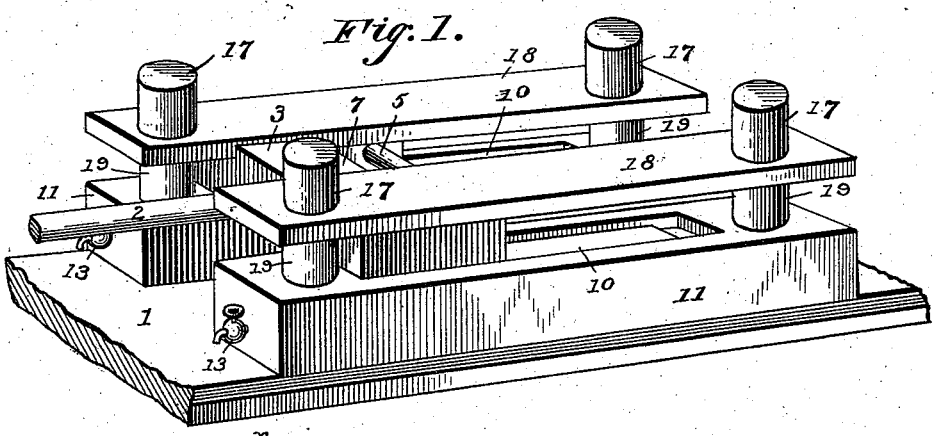


Fig. 2.

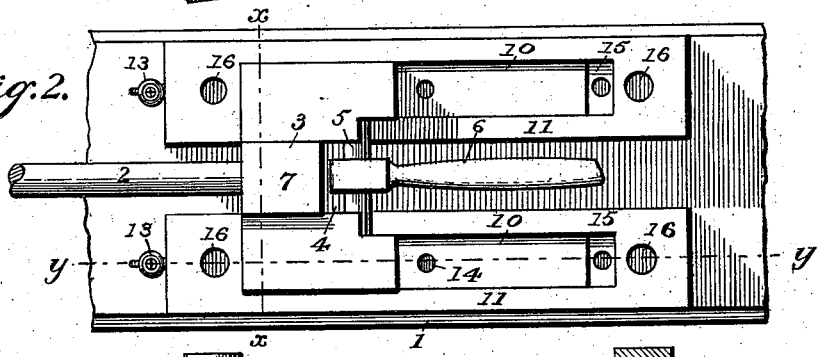


Fig. 4.

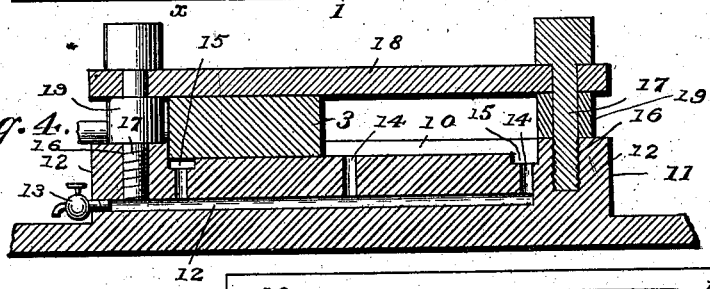
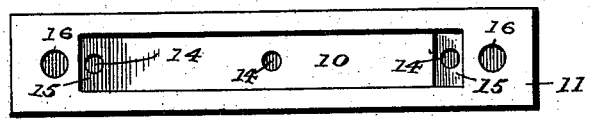


Fig. 3

Fig. 5



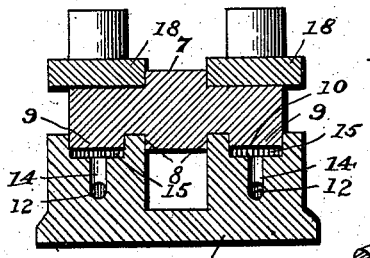
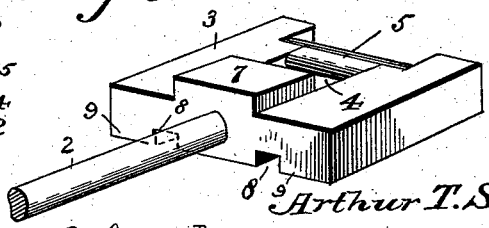


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

ARTHUR T. SNODGRASS, OF DOTHEN, ALABAMA.

ENGINE CROSS-HEAD.

SPECIFICATION forming part of Letters Patent No. 524,074, dated August 7, 1894.

Application filed April 13, 1894. Serial No. 507,433. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR T. SNODGRASS, a citizen of the United States, residing at Dothen, in the county of Henry and State of Alabama, have invented a new and useful Engine Cross-Head, of which the following is a specification.

The object of this invention is to produce a more effective and generally desirable lubricator for engine cross-heads; and this end I attain by forming an oil-chamber in each slide or guide, and so arranging it that the oil will be continually fed to the cross head as it reciprocates in operation, all of which will be more fully described hereinafter and finally embodied in the claims.

In the accompanying drawings: Figure 1 represents a perspective view of a cross-head slide embodying the essential features of my invention; Fig. 2, a plan view thereof, showing the top guide-plates removed; Fig. 3, a cross-section taken on the line *x*—*x* of Fig. 2; Fig. 4, a longitudinal section on the line *y*—*y* of Fig. 2; Fig. 5, a plan view of one of the guide-grooves; Fig. 6, a detail perspective of the cross-head.

The reference numeral 1 indicates the frame of the engine to which I have shown my improvements applied; 2 the piston-rod and 3 the cross-head, to which the rod 2 is rigidly secured as usual. The cross-head 3 consists of a metallic block provided with the recess 4, across which the stout spindle or rod 5, extends. By this means the pitman 6 is pivotally connected to the cross-head. Formed on the upper face of the cross-head 3, and in vertical alignment with rod 2, is the stud or projection 7, while the under surface of the block is formed with the longitudinal and parallel grooves 8 therein. These grooves 8 are two in number, and are provided to form the ribs 9, which are also two in number and adapted to fit within the longitudinal guide-grooves 10, of the frame 1. Thus the cross-head is mounted. The grooves 10 are one for each of the ribs 9 and are formed one in each of the longitudinal beams 11, of the frame. These beams 11 may be rigidly secured to or formed integral with the frame, and the grooves are angular in cross-section, so that they will snugly receive the ribs 9. The beams 11 have longitudinal passages 12 formed therein, and these extend from a point near the inner ends thereof entirely through the beams and out at the outer ends of the beams; a cock 13 being provided for the opening of each passage, whereby it may be closed.

Communicating with the passages 12, and extending vertically from the grooves 10, are the openings or auxiliary passages 14, three for each groove, which are arranged one at each end of each groove and one at the middle thereof. The openings 14, which are arranged at the ends of the grooves 10, are provided at their upper ends with the transversely-extending slots 15. These slots extend the entire width of the grooves 10, and serve to catch and retain the grit which may fall into the grooves, as will be better described hereinafter. Formed in the ends of the beams 11 are the vertical passages 16, which are screw threaded and adapted for the reception of the bolts 17.

The bolts 17 are one for each passage 16, and are provided to hold the upper or guide-beams 18 in place, a sleeve 19 being placed on each bolt, and upon which the beams 18 rest, whereby they are held incapable of downward movement, upward movement being rendered impossible by the heads of the bolts. The beams 18 are, as will be readily seen, two in number and are adapted to lie above the cross-head and one on each side of the stud 7 of such device. By these means the cross-head is securely held in place and allowed the free and unrestrained reciprocal movement necessary for such devices.

In operation, the passages 12 are filled with a suitable lubricant, valves or cocks 13 having been first closed, and the lubricant allowed to rise so as to just cover the bottom of grooves 10. As the cross-head 3 reciprocates it pushes before it the lubricant lying ahead of its line of movement, thereby causing the lubricant to rise in front of the cross-head, which operation will be attended by a pressure in passages 12, and a consequent rise of the lubricant through the opening 14 to the rear of the head, only to be raised and forced out again by the head when it returns, in this way an effectual lubrication is effected.

By means of the transversely-extending slots 15, the grit and dust which may fall into the grooves 10 are quickly disposed of, since it

will be pushed to either end of the grooves 10 by means of the reciprocating cross-head, and into the slots 15, from whence it proceeds down passages 14 and into the slots 12. Cocks 13 are provided to draw off the contents of the passages 12 and 14, when it is desired or necessary to clean them. This, however, will be necessary but very seldom in a well-kept engine, probably not more frequently than once in four years.

If so desired, a cap or shield may be placed on each side of the beams 18, to prevent the splashing of oil from the grooves. It is also possible and expedient to arrange an ordinary oil-box upon the beams 18.

Having described my invention, what I claim is—

1. The combination of a piston-rod, a cross-head connected thereto, a pitman connected to the cross-head, and a longitudinal guide for the cross-head, said guide having formed and extending longitudinally therein a passage, and openings or auxiliary passages formed in each end of the guide and communicating with the longitudinally-extending passage, said passage being adapted for the reception of a lubricant, substantially as described.

2. The combination of a piston-rod, a cross-head connected thereto, a pitman connected to the cross-head, and two parallel guides in which the cross-head reciprocates, each of said guides being formed with an interior longitudinal passage, and with a second or auxiliary passage at each end of the longitudinal passage and communicating with the bearing face of the guide, said passages being adapted for the reception of a lubricant, substantially as described.

3. The combination of a piston-rod, a cross-head connected thereto, a pitman connected to the cross-head, and a guide for the cross-head, said guide having a longitudinal groove in which the cross-head reciprocates, and an interior passage the ends of which communicate respectively with the ends of the said groove, said passage being adapted for the reception of a lubricant, substantially as described.

4. A longitudinal guide provided in its face with a groove and having a longitudinal passage communicating at each end with the corresponding end of the groove, said passage being adapted to contain a lubricant, and a cross-head having a rib to fit in said groove in the face of the guide, in combination with a piston-rod, and a pitman connected to the cross-head, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ARTHUR T. SNODGRASS.

Witnesses:
JOE BAKER, Jr.,
W. J. JENKINS.